

**WHAT IS CLAIMED IS:**

1           1. A multicolor display comprising  
2           a substrate; and  
3           at least one multicolor generation site coupled to said substrate, each of  
4           said at least one multicolor generation sites comprised of:  
5               at least two light emitting regions proximate to one another;  
6               at least one wavelength conversion layer applied to at least one of  
7           said at least two light emitting regions, wherein said at least two light emitting  
8           regions in combination with said at least one wavelength conversion layer emit at  
9           least two different colors; and  
10              an opaque material interposed between said at least two light  
11           emitting regions, said opaque material preventing cross-talk between said at least  
12           two light emitting regions.

1           2. A multicolor display comprising  
2           a substrate; and  
3           a multicolor generation site grown on said substrate comprising:  
4               at least two LEDs proximate to one another;  
5               a first wavelength conversion layer applied to a light emitting  
6           surface of a first of said at least two LEDs, wherein said at least two LEDs in  
7           combination with said first wavelength conversion layer emit at least two different  
8           colors; and  
9               an opaque material interposed between said at least two LEDs, said  
10           opaque material preventing cross-talk between said at least two LEDs.

1           3. The multicolor display of claim 2, wherein said at least two LEDs  
2           are comprised of three individual LEDs proximate to one another.

1           4. The multicolor display of claim 3, further comprised of a second  
2           wavelength conversion layer applied to a light emitting surface of a second of said three  
3           individual LEDs, wherein said three individual LEDs in combination with said first and  
4           second wavelength conversion layers emit three different colors.

1               5.       The multicolor display of claim 2, wherein said at least two LEDs  
2 emit light at a wavelength in the range of wavelengths between 4,000 and 4,912  
3 Angstroms.

1               6.       A multicolor display comprising  
2                    a substrate; and  
3                    a plurality of multicolor generation sites grown on said substrate, each of  
4                    said plurality of multicolor generation sites comprised of:  
5                          at least two LEDs proximate to one another;  
6                          a wavelength conversion layer deposited on a light emitting surface  
7                          of a first of said at least two LEDs, wherein said at least two LEDs in combination  
8                          with said wavelength conversion layer emit at least two different colors; and  
9                          an opaque material interposed between said at least two LEDs, said  
10                         opaque material preventing cross-talk between said at least two LEDs.

1               7.       The multicolor display of claim 6, further comprising an index  
2 matching layer interposed between said wavelength conversion layer and said light  
3 emitting surface of said first LED.

1               8.       The multicolor display of claim 6, further comprising a protective  
2 layer deposited on an exterior surface of said wavelength conversion layer.

1               9.       The multicolor display of claim 6, further comprising a protective  
2 layer deposited on a light emitting surface of a second of said at least two LEDs.

1               10.      The multicolor display of claim 6, wherein said substrate is  
2 selected from the group consisting of sapphire, silicon carbide and gallium nitride.

1               11.      The multicolor display of claim 6, wherein said at least two LEDs  
2 emit light at a wavelength in the range of wavelengths between 4,000 and 4,912  
3 Angstroms.

1               12.      The multicolor display of claim 6, further comprising a cross-talk  
2 minimization layer interposed between said substrate and said at least two LEDs.

1                   13. The multicolor display of claim 12, wherein said cross-talk  
2 minimization layer is comprised of a Bragg reflector.

1                   14. The multicolor display of claim 12, wherein said cross-talk  
2 minimization layer is comprised of a partially absorbing layer.

1                   15. A multicolor display comprising  
2                   a substrate; and  
3                   a plurality of multicolor generation sites grown on said substrate, each of  
4                   said plurality of multicolor generation sites comprised of:  
5                   three LEDs proximate and immediately adjacent to one another;  
6                   a first wavelength conversion layer deposited on a light emitting  
7                   surface of a first of said three LEDs; and  
8                   a second wavelength conversion layer deposited on a light emitting  
9                   surface of a second of said three LEDs, wherein said three LEDs in combination  
10                  with said first and second wavelength conversion layers emit three different  
11                  wavelengths; and  
12                  an opaque material interposed between said three LEDs, said  
13                  opaque material preventing cross-talk between said three LEDs.

1                   16. The multicolor display of claim 15, wherein said substrate is  
2 selected from the group consisting of sapphire, silicon carbide and gallium nitride.

1                   17. The multicolor display of claim 15, wherein said first and second  
2 wavelength conversion layers are selected from the group of materials consisting of  
3 phosphors and active polymers.

1                   18. The multicolor display of claim 15, wherein said three LEDs emit  
2 light at a wavelength in the range of wavelengths between 4,000 and 4,912 Angstroms.

1                   19. The multicolor display of claim 15, wherein said first wavelength  
2 conversion layer converts light in a first wavelength range of between 4,000 and 4,912  
3 Angstroms to light in a second wavelength range of between 4,912 and 5,750 Angstroms.

1                   20. The multicolor display of claim 15, wherein said second  
2 wavelength conversion layer converts light in a first wavelength range of between 4,000

3 and 4,912 Angstroms to light in a second wavelength range of between 6,470 and 7,000  
4 Angstroms.

1                 21. The multicolor display of claim 15, further comprising:  
2                         a first index matching layer interposed between said first wavelength  
3 conversion layer and said light emitting surface of said first LED; and  
4                         a second index matching layer interposed between said second wavelength  
5 conversion layer and said light emitting surface of said second LED.

1                 22. The multicolor display of claim 15, further comprising:  
2                         a first protective layer deposited on an exterior surface of said first  
3 wavelength conversion layer; and  
4                         a second protective layer deposited on an exterior surface of said second  
5 wavelength conversion layer.

1                 23. The multicolor display of claim 22, wherein said first and second  
2 protective layers are equivalent layers.

1                 24. The multicolor display of claim 22, further comprising a third  
2 protective layer deposited on a light emitting surface of a third of said three LEDs.

1                 25. The multicolor display of claim 15, further comprising a plurality  
2 of channels within said substrate, said plurality of channels separating adjacent LEDs of  
3 said three LEDs, wherein said opaque material is deposited within said plurality of  
4 channels.

1                 26. The multicolor display of claim 15, further comprising a cross-talk  
2 minimization layer interposed between said substrate and said at least two LEDs.

1                 27. The multicolor display of claim 26, wherein said cross-talk  
2 minimization layer is comprised of a Bragg reflector.

1                 28. The multicolor display of claim 26, wherein said cross-talk  
2 minimization layer is comprised of a partially absorbing layer.